

REMARKS

Status of the Claims

- Claims 1, 4, 6, 9, and 11-13 are pending in the Application.
- Claims 1, 4, 6, 9, and 11-13 are rejected by Examiner.
- No claims are amended.

Claim Rejections Pursuant to 35 U.S.C. §103

Claims 1, 4, 6, and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Profibus Technical Description Order No. 4.002, September 1999, (Profibus) in view of U.S. Patent No. 6,073,244 to Iwazaki and in further view of U.S. Patent No. 5,664,166 to Isfeld. Applicant respectfully traverses the rejection.

The pending independent Claims 1 and 6 define the invention in terms of physical, functional, and timing characteristics. The current rejection is based on a combination of Profibus, Iwazaki, and Isfeld that presumably one of skill in the art would construct in order to obtain the current invention. Applicant notes that the Profibus physical interface is defined as being an RS-485, fiber optic, or IEC 1158-2 interface. It is well known to those of skill in the art that an RS-485 and an IEC 1158-2 interface is a single twisted copper pair wherein differential logic signals are used. Profibus uses this twisted differential wire pair to achieve the characteristics of a simple and inexpensive means to be able to transmit high speed data with reliability. In Profibus, the bus consists of a single twisted differential wire pair. See Profibus page 5, section 3.2 and Figure 6 describing the Profibus cabling connections using a single shielded wire pair.

Applicant notes that the pending claims clearly recite a serial bus connection having three lines; a data line, a control line, and a clock line for synchronous data transmission. Since Profibus is a standard that is defined as a bus with an RS-485 interface, and an RS-485 interface is defined as a single twisted shielded pair, then Applicant concludes that Profibus cannot represent part of Applicant's invention because Applicant's invention is defined as containing a serial bus having a data line, a

control line, and a clock line. This differs greatly from the single twisted copper pair RS-485 bus required of Profibus. Accordingly, the physical requirements of Profibus are in technical conflict with the present invention. Whereas Profibus defines a bus as a RS485 differential twisted copper signal pair, the current claims define a bus as separate data, control, and clock lines.

Viewed another way, Profibus cannot be modified to represent Applicant's invention without changing the single twisted differential signal pair characteristic of the RS-485 bus specification upon which Profibus relies. Alternately, changing the RS-485 standard upon which Profibus relies also changes the Profibus standard which invokes the RS-485 standard. Also, Applicant respectfully submits that one of skill in the art would not be motivated to conceive of Applicant's invention by using destroying the Profibus single pair conductor bus RS-485 standard or the IEC 1158-2 differential signaling standard because doing so would violate the benefits of Profibus and the RS-485 standards. It is not reasonable to expect one of skill in the art to select a standard, such as Profibus or RS-485, and then to discard all of the most basic beneficial elements of the standard, such as a single twisted wire pair bus and differential signaling. Thus, Applicant respectfully submits that one of skill in the art would not violate the principle of operation of the Profibus standard bus element, which is one RS-485 differential twisted signal pair, to try to arrive at the present invention because doing so simply drives counter to good engineering practices as known by one of skill in the art. Also, corrupting the Profibus standard or the RS-485 standard by forcefully changing the standard to try to fit the current invention has the effect of rendering Profibus unsuitable for its intended purpose which is a simple, reliable, single twisted pair bus corresponding to the RS-485 or IEC 1158-2 standard.

Figure 2A- 2F of Iwazaki depicts separate signals that include data (Fig. 2D), control (Fig. 2D), and clock (Fig. 2A) signals. Applicant assumes that the "bus 5" of Iwazaki Figure 1 consists of all of the six different signals shown in Figures 2A-2F. Thus, the "bus" of Iwazaki consists of at least the address signal line (Fig. 2C), a control signal line (Fig. 2D), a data signal line (Fig. 2E) at least two separate bus start and bus stop signal lines (Figs. 2B and 2F). These 5 or 6 different signal lines

represent the “bus” of Iwazaki. Applicant notes that this is dramatically different from the RS-485 single twisted differential pair that defines a bus according to the Profibus standard. Knowing this, Applicant respectfully submits that one of skill in the art would not be motivated to modify the single RS-485 bus of Profibus to be the 5-6 signal bus of Iwazaki because the modification would break the principle of operation of Profibus and render Profibus unsatisfactory for its intended purpose to be a simple and reliable bus structure based on a single well-known RS-485 bus definition.

Thus, Applicant respectfully submits that one of skill in the art would not be motivated to combine Profibus with Iwazaki because the combination breaks the Profibus standard which includes the single bus RS-485 standard.

Isfeld teaches, in Figure 2, that intermediate timing signals en0 (signal 213, Fig. 1) and en1 (signal 216, Fig. 1) are generated by the circuit of Figure 1 for the purpose of producing an enable signal (signal 208, Fig. 1) via NOR gate 209. The enable signal from the combination of en0 and en1 is an intermediate signal used to enable tristate buffer 200 driving a bi-directional bus line 201 which allows synchronized data from a latch 203 to be driven on the bus line 201. (See Isfeld, Figures 1, 2, and col. 5 lines 21-32). As shown in Fig. 2 of Isfeld, intermediate timing signals en0 and en1 are generated with the use of the intermediate timing toggle signal 301 and the rising edge of clock signal 300. Applicant notes that the toggle signal and the en0 and en1 are intermediate timing signal and are not used as a bus interface signal such as signal 201.

Although Isfeld teaches the generation of intermediary timing signals en0 and en1 using an intermediary toggle signal; none of which is output as a bus signal, the addition of Isfeld to the combination of Profibus and Iwazaki does not cure the problem that the modification of Profibus by Iwazaki breaks the principle of operation of Profibus as well as renders Profibus arguably unsatisfactory for its intended purpose as a simple reliable bus based on a single twisted pair bus standard. As before, Applicant respectfully submits that in order to arrive at the current invention, the principles of Profibus must be discarded which is counter to what one of skill in the art would do. This commonsense rule against combining references that ruin a principle of operation

or render one of the references unsuitable for its intended purpose is codified in MPEP §2143.01 sections V and VI which state:

V. THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

VI. THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.

Applicant respectfully submits that the addition of Iwazaki to modify Profibus in the current combination of Profibus, Iwazaki, and Isfeld does modify Profibus such that the single RS-485 bus is replaced with a set of 5-6 bus signals. This replacement of the 5-6 Iwazaki signals for the RS-485 single copper differential pair adversely affects both the benefits of the RS-485 standard and the simplicity of the Profibus standard. Applicant respectfully submits that the addition of Iwazaki to Profibus modifies the Profibus standard to be non-standard and thus renders Profibus unsatisfactory for its intended purpose as a standard and thus there is no suggestion or motivation to make the proposed modification according to MPEP §2143.01 Part V.

Likewise, since a leading principle of operation of Profibus is to use the single bus RS-485 standard, and the addition of Iwazaki changes that principle by replacing the RS-485 single twisted differential pair bus standard with the 5-6 bus signals of Iwazaki, and as a result changes the Profibus standard itself, then Applicant respectfully submits that the addition of Iwazaki to Profibus in the combination of Profibus, Iwazaki, and Isfeld changes a principle of operation of Profibus. Then, according to MPEP §2143.01 Part VI, the combination of Profibus, Iwazaki, and Isfeld is not sufficient to render the claims *prima facie* obvious.

Considering the above arguments, Applicant respectfully submits that there is no motivation to combine the references of Profibus, Iwazaki, and Isfeld under MPEP §2143.01 Part V. In addition, the combination of Profibus, Iwazaki, and Isfeld cannot form a prima facie case of obviousness under 35 USC §103(a) per MPEP §2143.01 Part VI.

Claims 4 and 9 are dependent on patentably distinct Claims 1 and 6 respectively and thus are also rendered non-obvious under 35 USC §103(a) per MPEP §2143.03. Applicant respectfully requests withdrawal of the present 35 USC §103(a) rejection and reconsideration for a Notice of Allowance of pending Claims 1, 4, 6, and 9 in light of the arguments presented above.

Claims 11-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Profibus Technical Description Order No. 4.002, September 1999, (Profibus) in view of U.S. Patent No. 6,073,244 to Iwazaki, in further view of U.S. Patent No. 5,664,166 to Isfeld, and in further view of U.S. Patent No. 7,120,427 to Adams et al. (Adams). Applicant respectfully traverses the rejection via amendment of independent Claim 6.

Applicant notes that the combination of Profibus, Iwazaki, and Isfeld fails to establish a prima facie case of obviousness against pending amended independent Claim 6, upon which Claims 11-13 depend, because the combination of Profibus, Iwazaki, and Isfeld violates MPEP §2143.01 Parts V and VI. The addition of Adams to the combination of Profibus and Iwazaki does not change that result. Accordingly, Claims 11-13 are not rendered obvious by the combination of Profibus, Iwazaki, Isfeld, and Adams per MPEP §2143.03.

Applicant respectfully requests reconsideration and withdrawal of the 35 USC §103(a) rejections on Claims 11-13 in light of the amendment to independent Claim 6 and the arguments presented above.

Conclusion

Applicant respectfully submits that the pending claims patentably define over the cited art and respectfully requests withdrawal of the present 35 USC §103(a) rejections, and reconsideration for a Notice of Allowance.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 07-0832 therefore.

Respectfully submitted,
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